

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An interconnection structure, comprising:

a first conductive layer formed on a substrate and composed of a copper layer;

a single ~~an~~-insulating layer formed on said first conductive layer and having a hole reaching said first conductive layer and a groove communicating with said hole;

a second conductive layer formed within said insulating layer and composed of a copper layer electrically connected to said first conductive layer through said hole; and

a single barrier metal layer formed on an entire surface defining said hole and said groove in said insulating layer and formed between said second conductive layer and said hole, and said insulating layer; wherein

said barrier metal layer has an opening in a bottom portion of said hole, and said second conductive layer comes in direct contact with said first conductive layer through said opening.

2. (Previously Presented) An interconnection structure, comprising:

a first interconnection portion formed on a substrate;

a second interconnection portion formed on said substrate and having a line width larger than that of said first interconnection portion;

an insulating layer formed on said first and second interconnection portions and having a hole reaching said second interconnection portion; and

a conductive layer electrically connected to said second interconnection portion through said hole and formed within said insulating layer; wherein

said first interconnection portion is composed of a copper layer formed by plating,

said second interconnection portion has a two-layered structure of a copper layer and a metal layer positioned at least in a region directly under said hole, and

the metal layer is composed of a layer excluding a copper plated layer including microvoids.

3. (Original) The interconnection structure according to claim 2, wherein said metal layer is a copper layer formed by sputtering.

4. (Original) The interconnection structure according to claim 2, wherein said metal layer is an aluminum alloy layer.

5. (Currently Amended) An interconnection structure, comprising:
a first conductive layer formed on a substrate and composed of a copper layer;
an insulating layer formed on said first conductive layer and having a first hole and a second hole reaching said first conductive layer; and
a second conductive layer for electrical connection to another element, electrically connected to said first conductive layer through said first hole and formed within said insulating layer; wherein

said second hole is used as a dummy hole which does not electrically connect said first conductive layer to another element,

said first- second conductive layer has a first interconnection portion with a large line width, and said second conductive layer has a second interconnection portion with a small line width, and

said first interconnection portion with the large line width is connected to said second interconnection portion with the small line width through said hole.

6. (Original) The interconnection structure according to claim 5, further comprising a dummy interconnection layer which is electrically connected to said first conductive layer through said second hole and does not electrically connect said first conductive layer to another element.

7. (Original) The interconnection structure according to claim 5, further comprising a third conductive layer filling said second hole, wherein

said third conductive layer is not electrically connected to other interconnection layer other than said first conductive layer.

8. (Cancelled)

9. (Previously Presented) The interconnection structure according to claim 5, wherein

said first conductive layer has a first interconnection portion with a large line width, and a second interconnection portion with a small line width,

said second conductive layer has a third interconnection portion with a small line width, and

said second interconnection portion with the small line width is connected to said third interconnection portion with the small line width through said hole.

10. (Currently Amended) ~~The interconnection structure according to claim 9,~~
~~wherein~~ An interconnection structure, comprising:

a first conductive layer formed on a substrate and composed of a copper layer;

an insulating layer formed on said first conductive layer and having a first hole and a
second hole reaching said first conductive layer; and

a second conductive layer for electrical connection to another element, electrically
connected to said first conductive layer through said first hole and formed within said insulating
layer; wherein:

said second hole is used as a dummy hole which does not electrically connect said first
conductive layer to another element;

said first conductive layer has a first interconnection portion with a large line width, and a
second interconnection portion with a small line width;

said second conductive layer has a third interconnection printout;

said second interconnection portion with the small line width is connected to said third
interconnection portion;

said second hole used as said dummy hole is formed so as to reach said first
interconnection portion with the large line width.

11. (Currently Amended) ~~The interconnection structure according to claim 9,~~
~~wherein~~ An interconnection structure, comprising:

a first conductive layer formed on a substrate and composed of a copper layer;

an insulating layer formed on said first conductive layer and having a first hole and a second hole reaching said first conductive layer; and

a second conductive layer for electrical connection to another element, electrically connected to said first conductive layer through said first hole and formed within said insulating layer; wherein:

said second hole is used as a dummy hole which does not electrically connect said first conductive layer to another element;

said first conductive layer has a first interconnection portion with a large line width, and a second interconnection portion with a small line width;

said second conductive layer has a third interconnection printout;

said second interconnection portion with the small line width is connected to said third interconnection portion;

said second hole used as said dummy hole is formed so as to reach said second interconnection portion with the small line width; and

said second hole is positioned on said second interconnection portion with the small line width between a connection portion of said first interconnection portion with the large line width and said second interconnection portion with the small line width and said first hole.